

# **COPD Brief**

## **What is Chronic Obstructive Pulmonary Disease (COPD)?**

Chronic obstructive pulmonary disease, or COPD, is a respiratory disease that makes it hard to breathe. The disease is progressive, meaning it gets worse over time, and includes chronic bronchitis and emphysema. With COPD, less air flows in and out of the airways for one or more of the following reasons: the airways and air sacs lose their elastic quality, the walls between many of the air sacs are destroyed, the walls of the airways become swollen, or increased mucus production leading to airway obstruction.<sup>1</sup>

COPD cannot be cured, but treatment and changes in lifestyle behaviors, such as stopping smoking, can help slow the progress of the disease. Treatments for COPD include medicines, vaccines, pulmonary rehabilitation, oxygen therapy, surgery, and managing complications.<sup>2</sup> The symptoms of COPD can be managed by avoiding lung irritants, taking medications and getting vaccinated as directed by physician, and other steps including rehabilitation and continuing ongoing medical care.

COPD is one of the 10 leading causes of disability in the United States, and a leading cause of death.<sup>1</sup> In 2008, an estimated 13 million adult Americans had COPD.<sup>3</sup>

## **Risk Factors for COPD**

### **Demographic Risk Factors**

- *Age*
  - COPD occurs most often in older people, and may affect up to 10% of people 65 years or older.<sup>4</sup>
- *Gender*
  - In the years 2000 through 2005, the rate of COPD deaths in men declined, while in women it increased. However, the COPD death rate among men is still higher than that of women.<sup>5</sup>
- *Genetics/Family History*
  - People with a family history of COPD are more likely to get the disease if they smoke.<sup>1</sup>
  - Genes have been discovered that directly influence the development of COPD.<sup>6</sup>

### **Social and Behavioral Risk Factors**

- *Smoking*
  - The number one risk factor for COPD is smoking; most people who have COPD smoke or used to smoke.<sup>7</sup>
  - 85% to 90% of COPD deaths are due to smoking.<sup>8</sup>
- *Secondhand Smoke*

- *History of Respiratory Infections*
- *Occupational Exposure*
  - Certain occupations are associated with higher risk of COPD, such as those who work with extended exposure to dust, ash, fumes, and gases.<sup>4</sup>

## Intermediate Outcomes

- *Chronic Bronchitis*
  - Leads to inflammation and eventual scarring of the lining of the bronchial tubes, making them less able to transfer oxygen to and from the lungs.
  - In addition to difficulty breathing, the bronchial tubes become ideal breeding place for bacterial and viral infections.<sup>8</sup>
- *Emphysema*
  - The progressive, irreversible, destruction of the alveoli (air sacs) in the lungs. This damage creates holes in the tissue of the lower lungs, and leads to shortness of breath and an inability to transfer oxygen to the blood.<sup>8</sup>

## National Statistics and Disparities

### Statistics

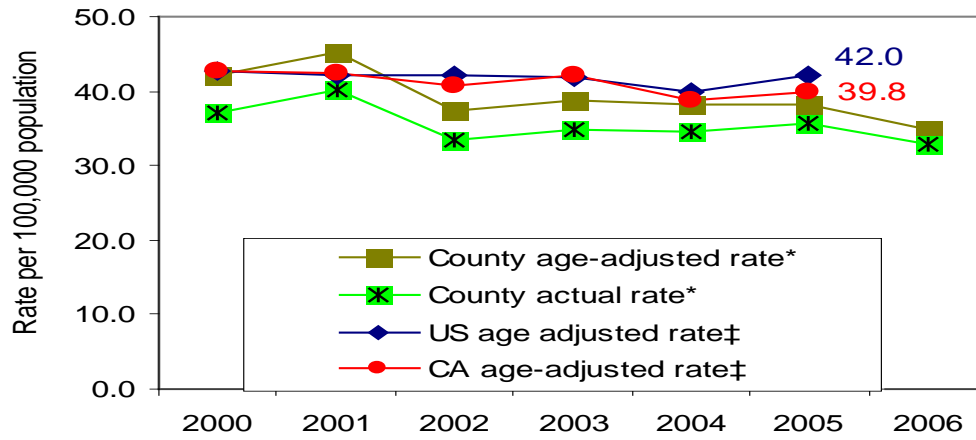
- In 1998, the age-adjusted COPD death rate was 120.9 per 100,000 persons aged 45 years.<sup>4</sup>
- Nationally, whites are diagnosed more frequently with COPD than other racial or ethnic groups and they are more likely to die from it.<sup>4</sup>
- Nationally, between 1980 and 2000, the death rate from COPD among women 25 years and older rose from 20.1 per 100,000 to 56.7 deaths per 100,000. The COPD death rate among men of the same age group rose more slowly, from 73.0 per 100,000 to 82.6 deaths per 100,000.<sup>5</sup>
- Nationally, in 2006 672,000 hospital discharges were reported (rate of 22.5 per 100,000 population), 64% of those discharges were among adults 65 years and older.<sup>8</sup>

### Cost

- Nationally, in 2007 the annual cost for COPD was over \$50 billion. More than half was in direct health care costs, and the rest was in indirect costs.<sup>9</sup>

## Local Statistics and Disparities

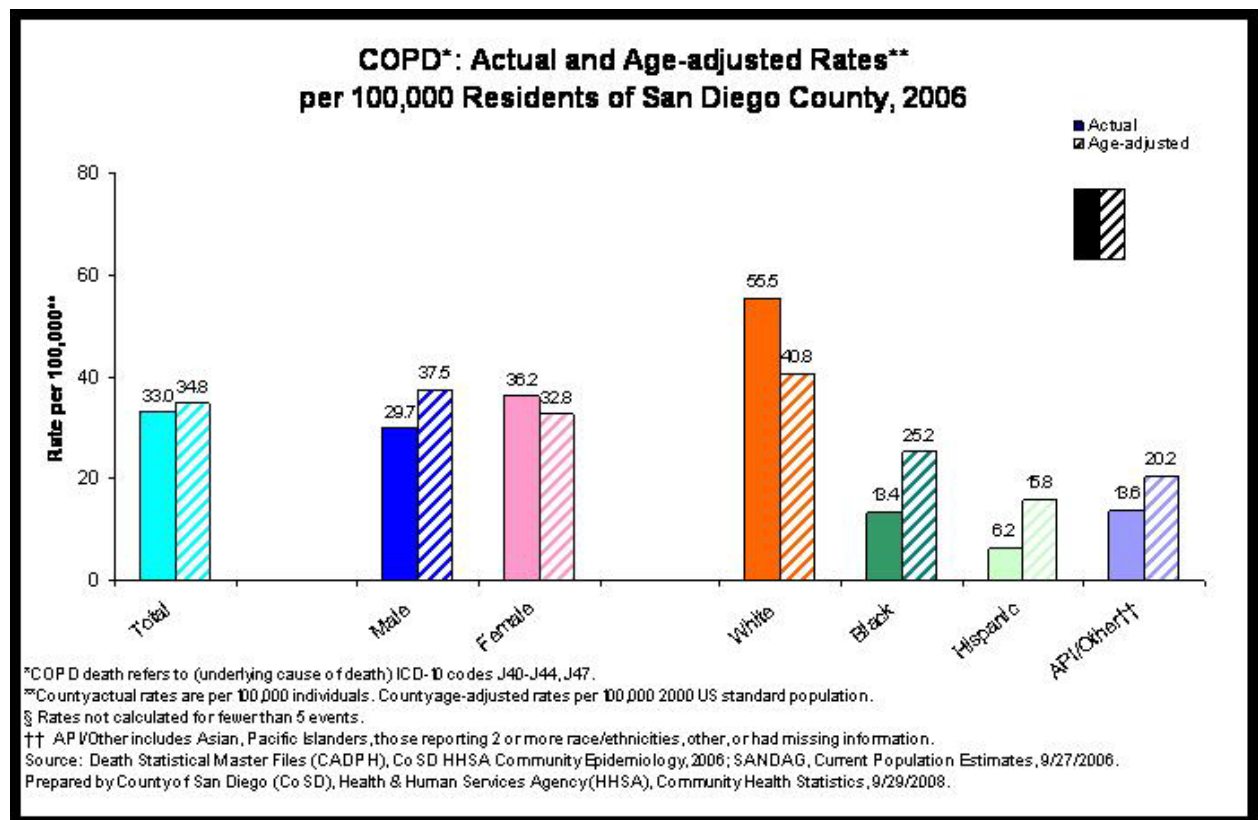
### National, State and Local COPD Death Rates, 2000-2006



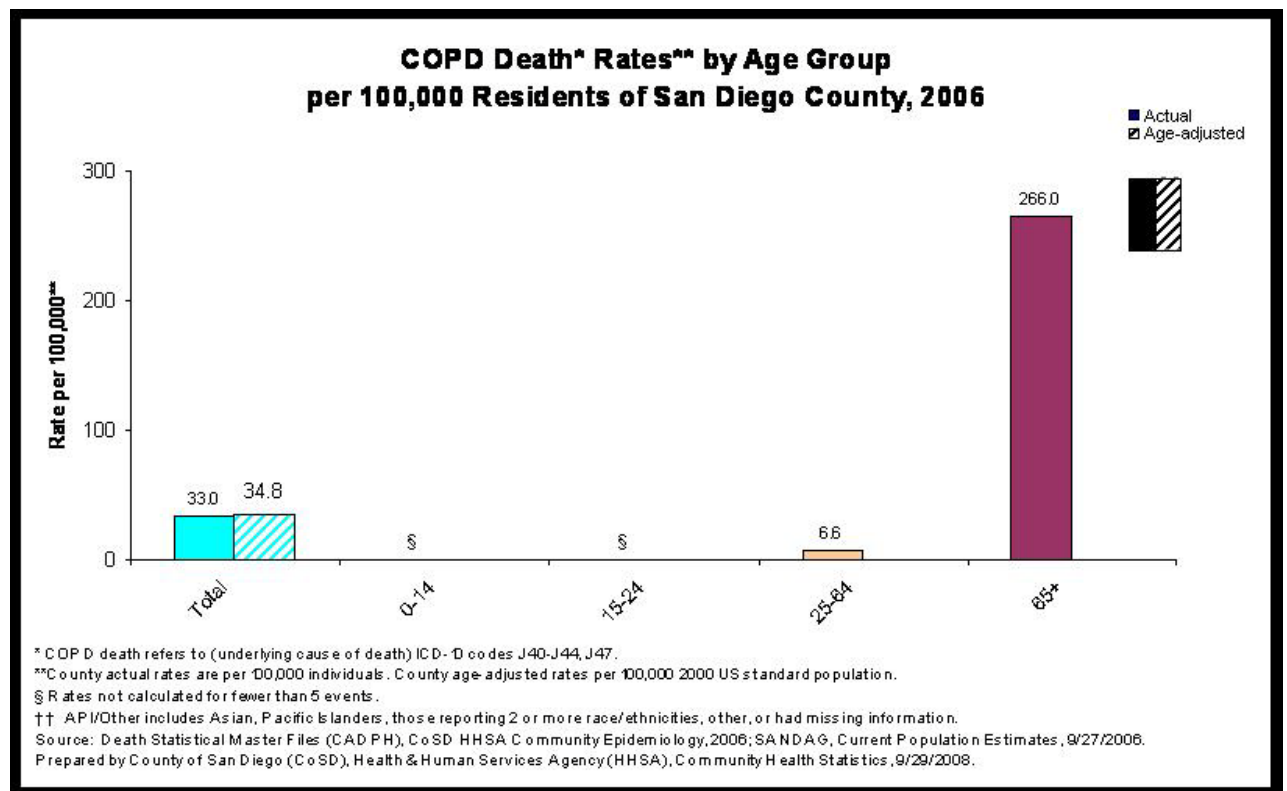
\* Source: Death Statistical Master Files (CA DPH), CoSD, HHSA, Community Epidemiology 2000-2006; SANDAG, Current Population Estimates, 9/27/2006.

‡ Source: CDC, NCHS, Compressed Mortality Files. On-line database accessed 4/15/2009: <http://wonder.cdc.gov/cmfi10.html>

- Death rates from COPD have shown a slight decline from 2000 to 2006.

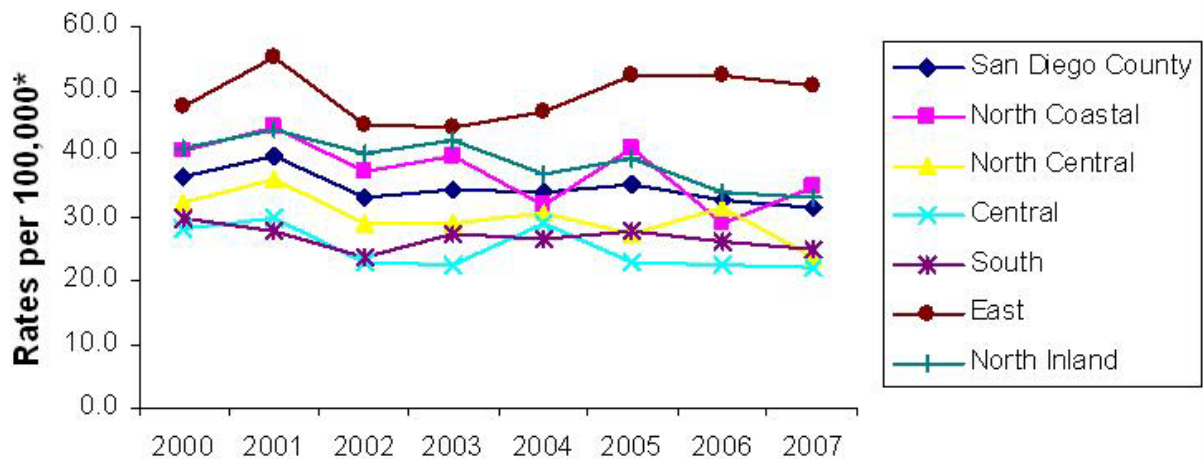


- In San Diego County, the age-adjusted COPD death rate was 34.8 per 100,000 residents and the actual rate of death was 33.0 per 100,000 in 2006.
- The rates of death from COPD were similar for men and women.
- In 2006, whites had the highest actual (55.5/100,000) and age-adjusted (40.8/100,000) rates of death from COPD in San Diego County when compared to blacks, Hispanics and API/Other. Hispanics had the lowest death rates from COPD (6.2/100,000, actual; 15.8/100,000, age-adjusted).



- By age group, San Diego County residents who were 65 years and older had the highest actual death rate from COPD (266.0/100,000).

## COPD Death Rates\* of San Diego County Residents by Region, 2000-2007



\* COPD death refers to (underlying cause of death) ICD-10 codes J40-J44, J47.

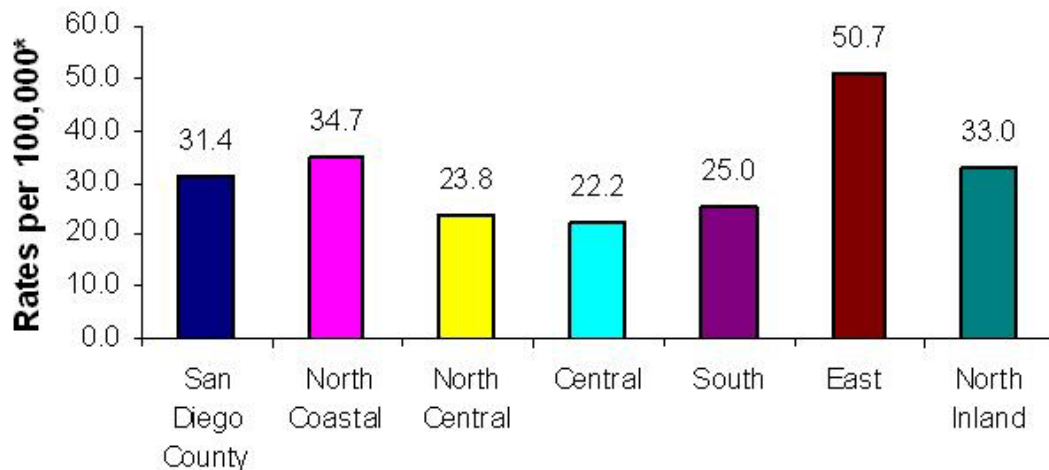
\*\*County actual rates are per 100,000 individuals. County age-adjusted rates per 100,000 2000 US standard population.

Source: Death Statistical Master Files (CADPH), CoSD HHSA Community Epidemiology, 2006; SANDAG, Current Population Estimates, 9/27/2006.

Prepared by County of San Diego (CoSD), Health & Human Services Agency (HHSA), Community Health Statistics, 9/29/2008.

- From 2000 to 2007, the East Region of San Diego County had the highest COPD death rates.

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- For 2007, the East Region of San Diego County had the highest COPD death rate, while the Central Region had the lowest.

## COPD and Its Complications: Prevention for Individuals:

- *Early Detection*
  - A pulmonary function test can detect decreased lung function and allow COPD to be treated at an earlier stage to stop the progression of the disease.<sup>3</sup>
  - It is estimated that 24 million Americans have impaired lung function, suggesting that COPD is under-diagnosed. This may lead to fewer treatment options because the disease will not be detected until pulmonary function is severely impacted.<sup>3</sup>
- *Avoidance of Pollutants and Tobacco Smoke*
  - Do not smoke or breathe air contaminated with tobacco smoke.<sup>3</sup>
  - Avoid home and workplace air pollutants.<sup>3</sup>
- *Treat Respiratory Infections*
  - Treating infections of the respiratory tract is important for preventing the initial stages of COPD.<sup>3</sup>

- *Visit Your Doctor on a Regular Basis*
  - Treatment of COPD requires diagnosis by a physician, and careful management of medications to alleviate symptoms. Patients with advanced disease who have low blood oxygen levels are often given supplemental oxygen.<sup>3</sup>
- *Get a Flu Shot*
  - To avoid getting the flu, get a flu shot every year. Flu can cause serious problems for a person with COPD. Also, consider getting a pneumonia vaccine.<sup>3</sup>

## Prevention Tools for Public Health Professionals: COPD Critical Pathway

At this time, there is not a Critical Pathway to Disease for COPD. Please check back again.

## Data Sources

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<sup>1</sup> U.S. Department of Health & Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute, Disease and Conditions: COPD. [http://www.nhlbi.nih.gov/health/dci/Diseases/Copd/Copd\\_WhatIs.html](http://www.nhlbi.nih.gov/health/dci/Diseases/Copd/Copd_WhatIs.html). Last updated June 2010. Accessed June 4, 2010.

<sup>2</sup> U.S. Department of Health & Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute, Disease and Conditions: COPD: Treatments. [http://www.nhlbi.nih.gov/health/dci/Diseases/Copd/Copd\\_Treatments.html](http://www.nhlbi.nih.gov/health/dci/Diseases/Copd/Copd_Treatments.html). Last updated June 2010. Accessed June 4, 2010.

<sup>3</sup> U.S. Department of Health & Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute, What is COPD? <http://www.nhlbi.nih.gov/health/public/lung/copd/what-is-copd/index.htm>. Last updated June 2010. Accessed June 4, 2010.

<sup>4</sup> U.S. Department of Health & Human Services, Healthy People 2010. <http://hp2010.nhlbi.nih.net/2010obj/24respiratory.htm>. Accessed June 4, 2010.

<sup>5</sup> Centers for Disease Control and Prevention, Morbidity and Mortality Weekly Report, Deaths from Chronic Obstructive Pulmonary Disease – United States 2000-2005. <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5745a4.htm>. Last updated November 14, 2008. Accessed June 4, 2010.

<sup>6</sup> U.S. Department of Health & Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute, COPD: Are You at Risk? [http://www.cdc.gov/copd/pdfs/fact\\_sheet-COPD-Are\\_You\\_at\\_Risk.pdf](http://www.cdc.gov/copd/pdfs/fact_sheet-COPD-Are_You_at_Risk.pdf). Last updated December 2006. Accessed June 4, 2010.

<sup>7</sup> U.S. Department of Health & Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute, COPD: Am I at Risk? <http://www.nhlbi.nih.gov/health/public/lung/copd/am-i-at-risk/index.htm>. Last updated June 2010. Accessed June 4, 2010.

<sup>8</sup> American Lung Association. Chronic Obstructive Pulmonary Disease (COPD) Fact Sheet. <http://www.lungusa.org/lung-disease/copd/resources/facts-figures/COPD-Fact-Sheet.html>. Accessed June 4, 2010.

<sup>9</sup> U.S. Health & Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute, Disease Statistics. [http://www.nhlbi.nih.gov/about/factbook/chapter4.htm#4\\_7](http://www.nhlbi.nih.gov/about/factbook/chapter4.htm#4_7). Accessed June 28, 2011.